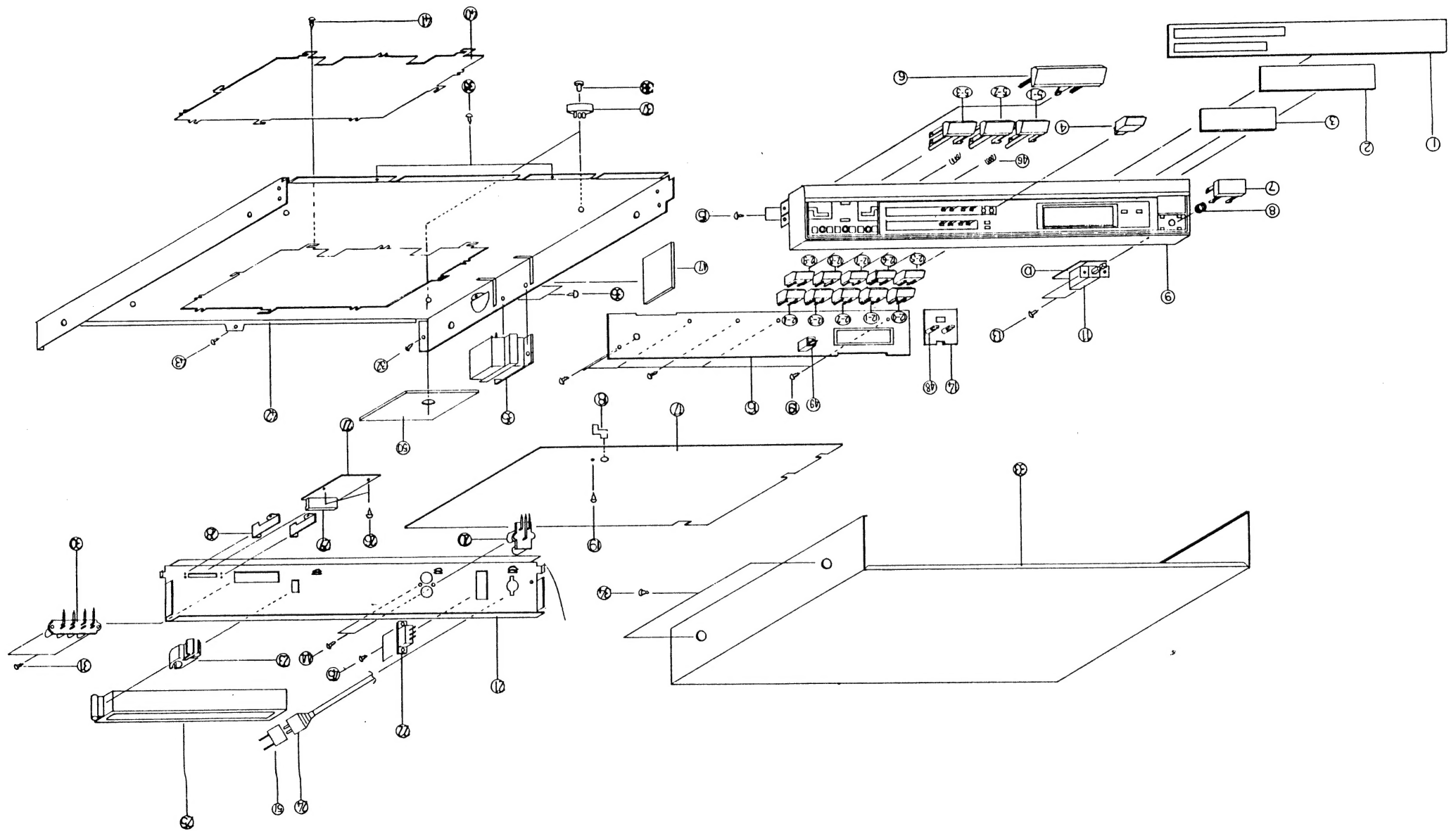
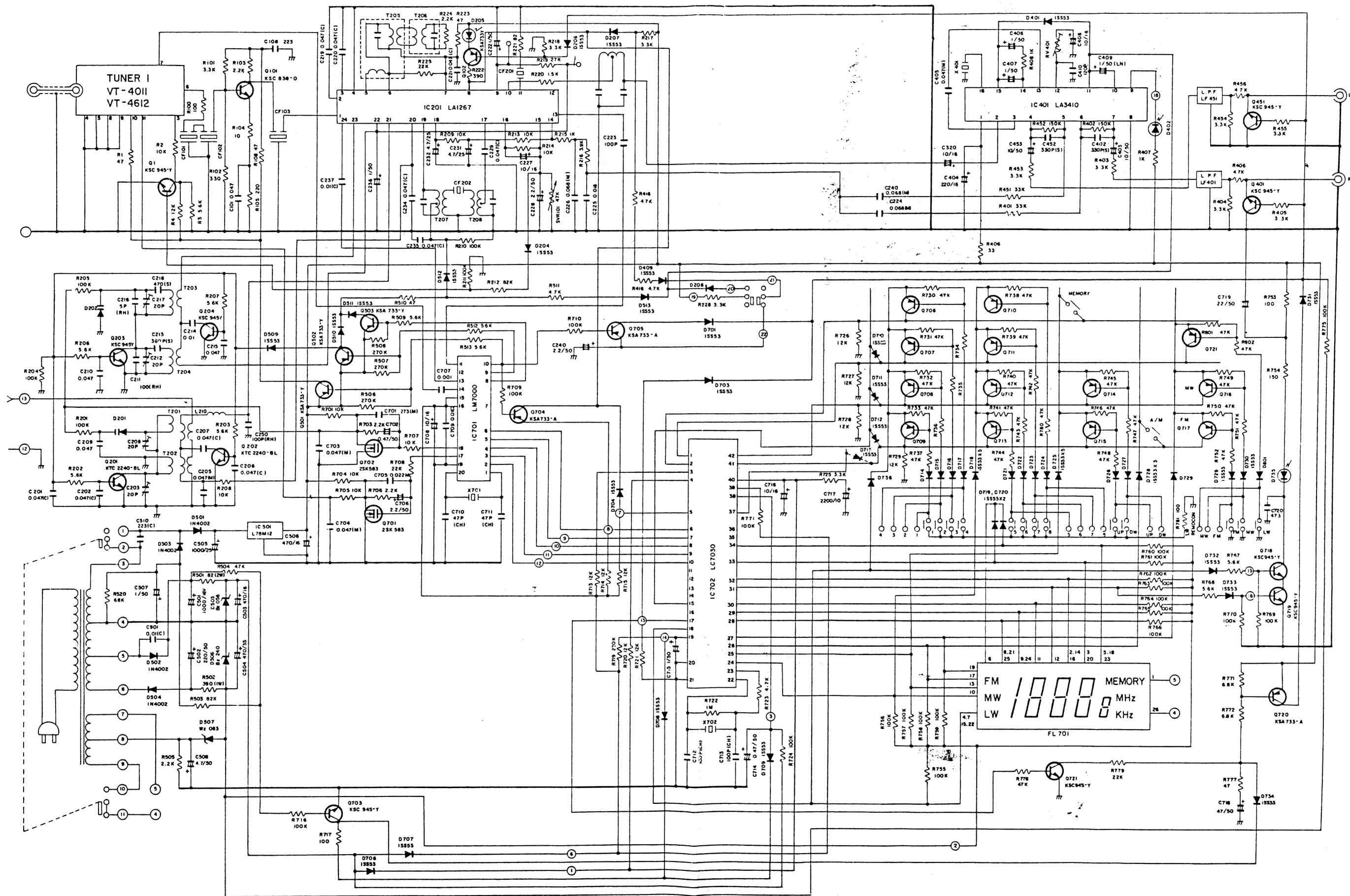


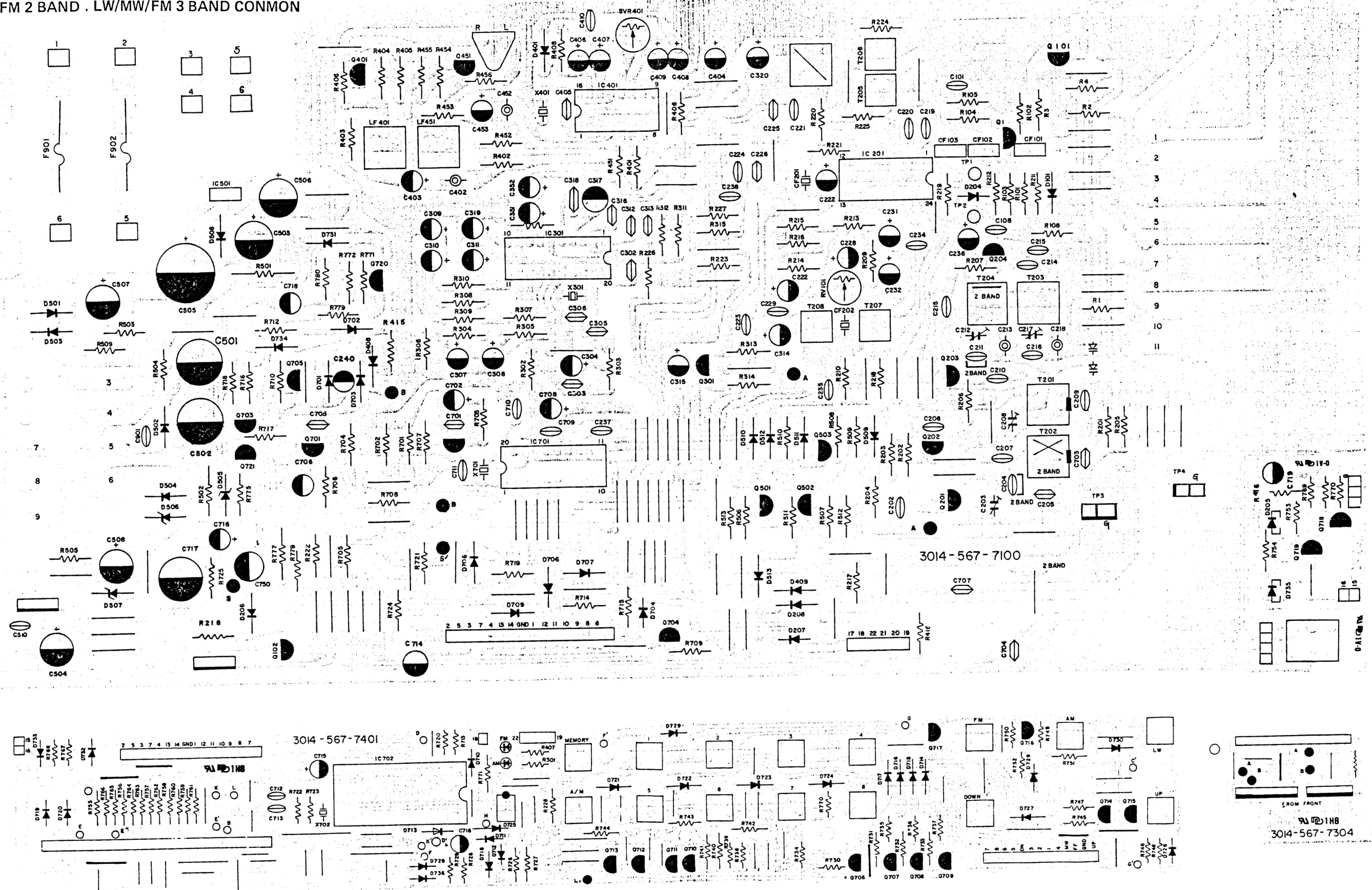
| | |
|---------------------|-----------------|
| BESTELL-NR. | 0698365 |
| GERAETEBEZEICHNUNG | UNIV.-PLL-TUNER |
| WARENSATTUNG | 653 |
| AUSFUEHRUNGS-NR. | 001 |
| GERAETEBESCHREIBUNG | |
| PRIVILEG | T 4682 |
| LIEFERANTEN-NR. | 205476 |
| PREIS | 198.00 |
| KATALOG | 882 |
| GARANTIEZEIT | 6 |
| KD-SEKTOR | R |
| HEIM/BRINGE | WERKSTATT |
| BETREUUNG | EIGEN |
| KOSTENTRAEGER | EIGEN |
| REPARATURFAEHIG | JA |





7. CIRCUIT BOARD DIAGRAM

AM/FM 2 BAND . LW/MW/FM 3 BAND COMMON



5. TRANSISTOR AND IC VOLTAGE

3. AL

IC201 LA1267

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|-----|-----|-----|-----|------|------|------|------|-----|-----|-----|-----|
| 2.2 | 2.2 | 2.2 | 0 | 11.2 | 11.2 | 11.2 | 9.6 | 3.8 | 3.0 | 1.5 | 0 |
| 1.1 | 1.1 | 1.1 | | 11.3 | 11.3 | 11.3 | 10.4 | 3.5 | | 1.4 | |
| 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 1.1 | 1.5 | 0.1 | 0.1 | 2.2 | 1.5 | 0 | 0 | 2.1 | 3.8 | 3.8 | 2.6 |
| | 1.6 | 0 | 0 | 1.1 | | 11.4 | 2.0 | | 3.6 | 3.6 | 1.5 |

IC401 LA3410

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|------|-----|-----|-----|-----|-----|-----|---|------|-----|-----|-----|-----|-----|-----|-----|
| 11.5 | 3.1 | 3.1 | 2.9 | 3.0 | 3.0 | 3.0 | 0 | 10.5 | 2.4 | 3.5 | 3.1 | 3.2 | 3.0 | 3.3 | 3.3 |
| | | | | | | | | | | 5.7 | | 4.1 | | 4.9 | 2.1 |

PIN NO

FM

AM

IC701 LM7000

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|-----|-----|---|---|---|-----|---|-----|------|------|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|
| 1.5 | 4.8 | 0 | 0 | 0 | 5.6 | 0 | 0.2 | 11.7 | 0.4 | 0.1 | 0.1 | 0.1 | 2.7 | 4.7 | 4.7 | 1.1 | 1.1 | 0 | 1.5 |
| | | | | | 4.7 | | | 0.4 | 11.7 | 1.2 | | 1.7 | 0.1 | | | | 0.5 | | |

IC702 LC7030

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|------|-------|-----|------|-----|------|-----|-----|----|----|
| 0 | 0 | 4.7 | 4.8 | 4.7 | 5.6 | 0 | 0 | 0 | 4.8 | 0 | 4.8 | 0 | 4.8 | -0.2 | 4.8 | 0 | -20 | 4.6 | 0 | 0 |
| | | | | | 4.7 | | | | | | | | 0 | | | -2.5 | | | | |
| 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 |
| 2.5 | 2.6 | -19 | -19 | -19 | -19 | -10 | -10 | -10 | -10 | -11 | -10 | -15 | 0 | 0 | 0.1 | 5.3 | 4.7 | 4.8 | 0 | 0 |
| | | | | | | | | | | -24.1 | -6.4 | -10.3 | | 2.0 | | | | | | |

| TR | LOCATION NO. | | Q1 | | Q101 | | Q102 | | Q401 | | Q451 | |
|----|--------------|---|------|---|------|-----|-------|-------|-------|-------|-------|-------|
| E | F | A | 0.38 | 0 | 0 | 0 | 10.32 | 10.39 | 0 | 0 | 0 | 0 |
| B | | | 1.07 | 0 | 0.12 | 0.1 | 9.64 | 9.71 | -3.06 | -3.06 | -3.06 | -3.06 |
| C | M | M | 8.1 | 0 | 3.87 | 0 | 10.30 | 10.38 | 0 | 0 | 0 | 0 |

| TR | Q501 | | Q502 | | Q701 | | Q703 | | Q704 | | Q705 | | Q706 | |
|----|-------|-------|-------|-------|------|------|-------|-------|------|-------|------|-------|------|-----|
| | 12.05 | 12.05 | 12.05 | 12.05 | 3.35 | 5.25 | 0 | 0 | 5.56 | 4.69 | 4.5 | 9.68 | 1.8 | 1.8 |
| B | 11.27 | 11.74 | 11.74 | 11.31 | 0 | 0 | -2.78 | -2.78 | 8.98 | 11.62 | 3.8 | 11.63 | 1.8 | 1.8 |
| C | 11.99 | 0 | 0.01 | 12.04 | 1.11 | 1.08 | 11.75 | 11.75 | 9.62 | 10.38 | 4.4 | -2.84 | 0 | 0 |

| TR | Q707 | | Q708 | | Q709 | | Q710 | | Q711 | | Q712 | | Q713 | |
|----|------|-----|------|-----|------|-----|------|------|------|------|------|------|------|------|
| E | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| B | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.99 | 1.99 | 1.99 | 1.99 | 1.99 | 1.99 | 1.99 | 1.99 |
| C | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

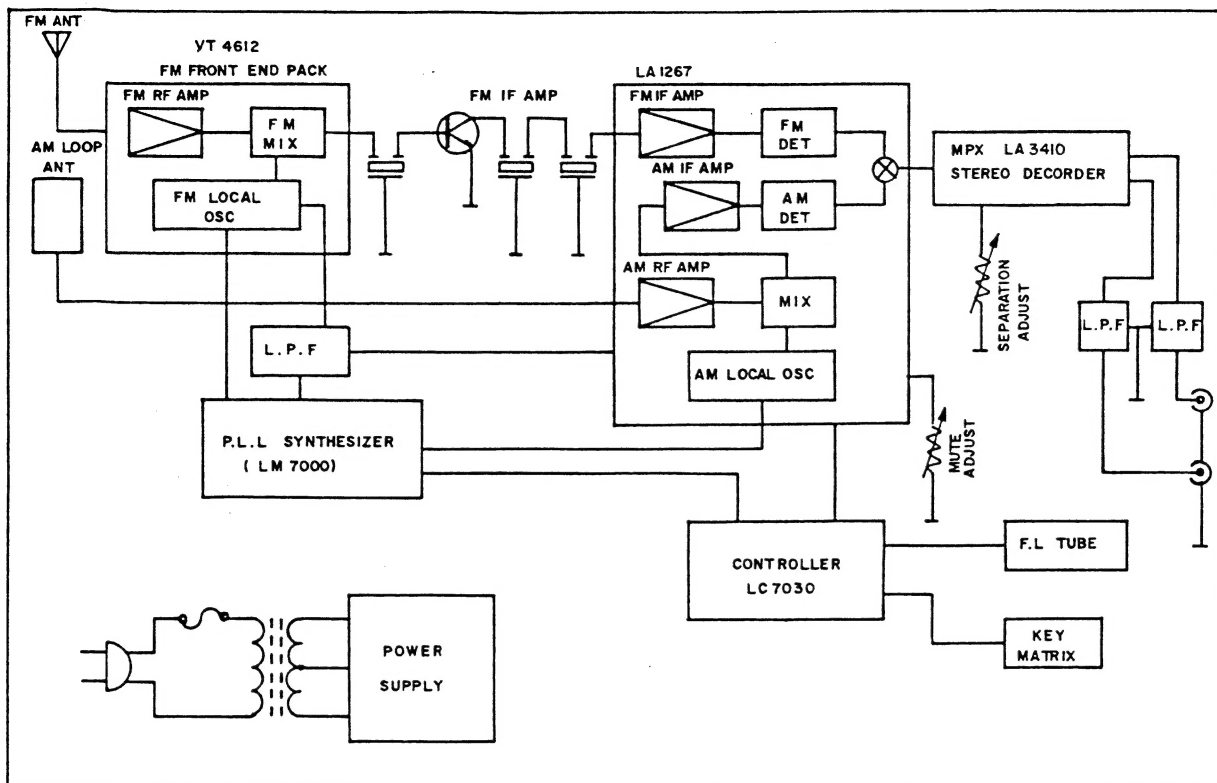
| TR | Q714 | | Q715 | | Q716 | | Q717 | | Q720 | | Q721 | |
|----|------|------|------|------|------|------|------|------|-------|-------|-------|-------|
| E | 1.93 | 1.93 | 1.93 | 1.93 | 1.96 | 1.96 | 1.96 | 1.96 | 12.07 | 12.07 | 0 | 0 |
| B | 1.92 | 1.92 | 1.92 | 1.92 | 1.95 | 1.95 | 1.95 | 1.95 | 12.06 | 12.06 | 0 | -2.51 |
| C | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.04 | -2.84 | 12.02 | 12.02 |

| FM. RF |
|--------|
| STEP |
| 1 |
| 2 |
| 3 |
| 4 |
| 5 |
| 6 |
| FM MU |
| 7 |
| 8 |
| MW LW |
| 9 |
| 10 |
| 11 |
| 12 |
| 13 |
| 14 |
| AM IF |
| 15 |

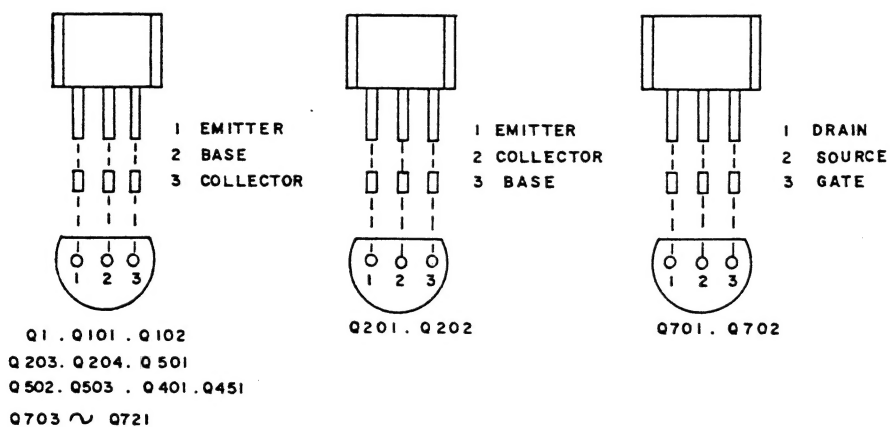
3. ALIGNMENT INSTRUCTION

() : LW 3BAND

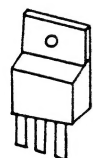
| FM. RF. IF. ALIGNMENT | | | | | | |
|---|--|--|---------------------|-------------------|-------------------------------|--|
| STEP | SIGNAL SOURCE | SET SIGNAL TO | ALIGNMENT INDICATOR | SET INDICATOR TO | ADJUST | REMARK |
| | CONNECT TO | | CONNECT TO | | | |
| 1 | FM SIGNAL GEN | MHz MODULATED WITH 1KHz | DC. VOLT METER | 87.5 MHz | L2 (FM OSC COIL) | ADJUST L FOR 1.5 ± 0.1 AT TP2 TO CHASSIS GND |
| | FM ANT TERMINAL | | TP1 | | | |
| 2 | FM SIGNAL GEN | MHz MODULATED WITH 1 KHz | DC. VOLT METER | 108.1MHz (908MHz) | NOT ADJUST | CHECKED 8.5V ± 0.1 AT TP TO CHASSIS GND |
| | FM ANT TERMINAL | | TP1 | | | |
| 3 | REPEAT STEPS 1 AND 2 OBTAIN FREQUENCY RANGE | | | | | |
| 4 | CONNECT TUNING METER BETWEEN POINT TP3 AND TP4 | | | | | |
| 5 | FM | 98.1MHz (98MHz) MODULATED WITH 1 KHz | TUNING METER | 98.1MHz (98MHz) | T205 | ADJUST FOR CENTER READING ON TUNING INDICATOR |
| | FM ANT TERMINAL | | TP3 AND TP4 | | | |
| 6 | FM | 98.1MHz (98MHz) MODULATED WITH 1 KHz | DISTORTION METER | 98.1MHz (98MHz) | T206 | ADJUST FOR MINIMUM READING ON. DISTOR-TION METER |
| | FM ANT TERMINAL | | FM OUTPUT | | | |
| FM MUTTING LEVEL AND SIGNAL LED ADJUSTMENT | | | | | | |
| 7 | FM SSG | 98.1MHz (98MHz) MODULATED MODULA | VTVM | 98.1MHz (98MHz) | SVR101 (MUTING LEVEL CONTROL) | SIGNAL SOURCE TO 20dB |
| | FM ANT TERMINAL | | FM OUT PUT | | | |
| SEPERATION ADJUSTMENT (SETTING FUNCTION SW FM MODE, STEREO) | | | | | | |
| 8 | FM SSG | 98.1MHz (98MHz) STEREO SIGNAL (L + R) (R ONLY) | V.T.V.M | 98.1MHz (98MHz) | SVR401 (SEPERATION CONTROL) | ADJUST R310 FOR MAXIMUM SEPARATION |
| | FM ANT TERMINAL | | FM OUTPUT | | | |
| MW LW RF ALIGNMENT | | | | | | |
| 9 | AM SSG | 522kHz | DC VOLT METER | 522kHz | T203 (MW OSC COIL) | ADJUST T203 FOR 0.8V ± 0.1 AT TP2 TO CHASSIS GND |
| | AM ANT TERMINAL | | TP 1 (TP2) | | | |
| 10 | AM SSG | 1611KHz | DC VOLT METER | 1611KHz | C217 (MW OSC TRIMMER) | ADJUST CT213 FOR 9V ± 0.1 AT TP2 TO CHASSIS GND |
| | AM ANT TERMINAL | | TP 1 (TP2) | | | |
| 11 | REPEAT STEPS 9 AND 10 TO OBTAIN FREQUENCY RANGE | | | | | |
| 12 | AM SSG | 153 kHz | DC VOLT METER | 153 kHz | T204 (LW OSC COIL) | ADJUST T204 FOR 0.8V ± 0.1 AT TP2 TO CHASSIS GND |
| | AM ANT TERMINAL | | TP2 | | | |
| 13 | AM SSG | 360kHz | DC VOLT METER | 360 kHz | C212 (LW OSC TRIMMER) | ADJUST CT212 FOR 9V ± 0.1 AT TP2 TO CHASSIS GND |
| | AM ANT TERMINAL | | TP2 | | | |
| 14 | REPEAT STEPS 12 AND 13 TO OBTAIN FREQUENCY RANGE | | | | | |
| AM IF ALIGNMENT | | | | | | |
| 15 | AM IF SWEEP GEN | SWEEP CENTERE 450kHz | OSCILLOSCOPE | (MIN. FREQ) | T208 T207 | MAXIMUM GAIN AND SYMMETRY CURVE |
| | AM ANT TERMINAL | | AM DET OUTPUT | | | |



9. TR AND IC LEAD LAYOUT

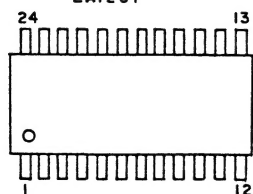


IC501
L78M12

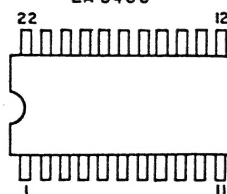


SIDE VIEW
L78M12
IC 501

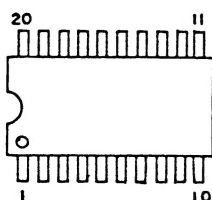
IC 201
LA1267



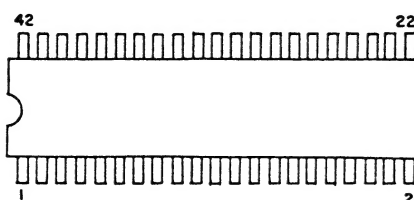
IC401
LA 3400



IC 701
LM7000

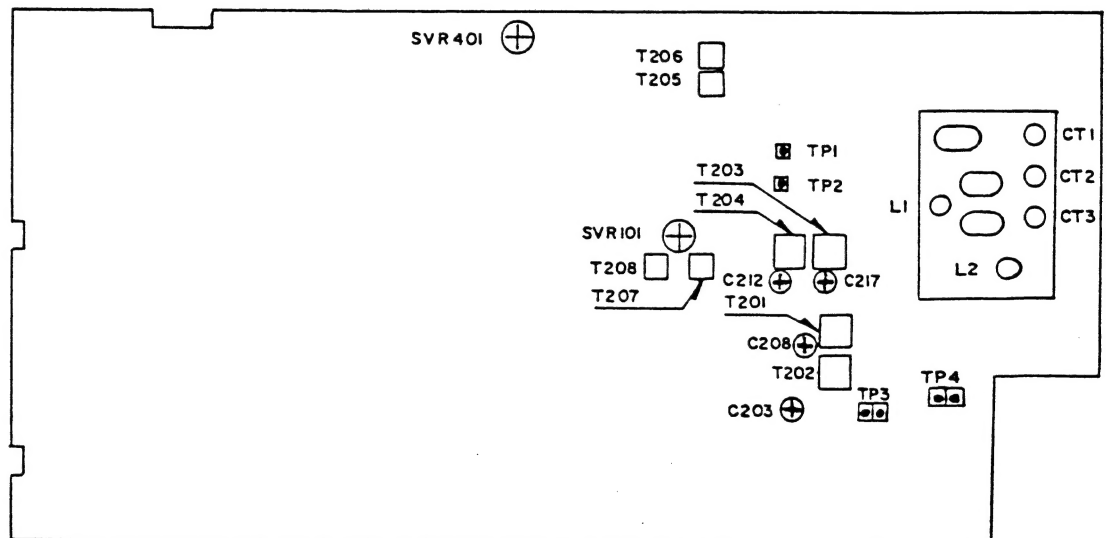


IC 702
LC7030



| MW, LW, RF ALIGNMENT | | | | | | |
|----------------------|---|---------------|---------------------|------------------|-----------------------|--------------|
| STEP | SIGNAL SOURCE | SET SIGNAL TO | ALIGNMENT INDICATOR | SET INDICATOR TO | ADJUST | REMARK |
| | CONNECT TO | | CONNECT TO | | | |
| 16 | AM SIGNAL GEN | 603 kHz | V.T.V.M | 603 kHz | T201 MW (ANT COIL) | MAXIMUM GAIN |
| | AM ANT TERMINAL | | AM DET OUTPUT | | | |
| 17 | AM SIGNAL GEN | 1404kHz | V.T.V.M | 1404 kHz | C208 MW (ANT TRIMMER) | MAXIMUM GAIN |
| | AM ANT TERMINAL | | AM DET. OUTPUT | | | |
| 18 | REPEAT STEPS 16 AND 17 FOR MINIMUM CHANGE | | | | | |
| 19 | AM SIGNAL GEN | 175 kHz | V.T.V.M | 175 kHz | T202 LW (ANT COIL) | MAXIMUM GAIN |
| | AM ANT TERMINAL | | AM DET. OUTPUT | | | |
| 20 | AM SIGNAL GEN | 320 kHz | V.T.V.M | 320 kHz | C203 LW (ANT TRIMMER) | MAXIMUM GAIN |
| | AM ANT TERMINAL | | AM DET. OUTPUT | | | |
| 21 | REPEAT STEPS 19 AND 20 FOR MINIMUM CHANGE | | | | | |

4. ALIGNMENT POINT LOCATION



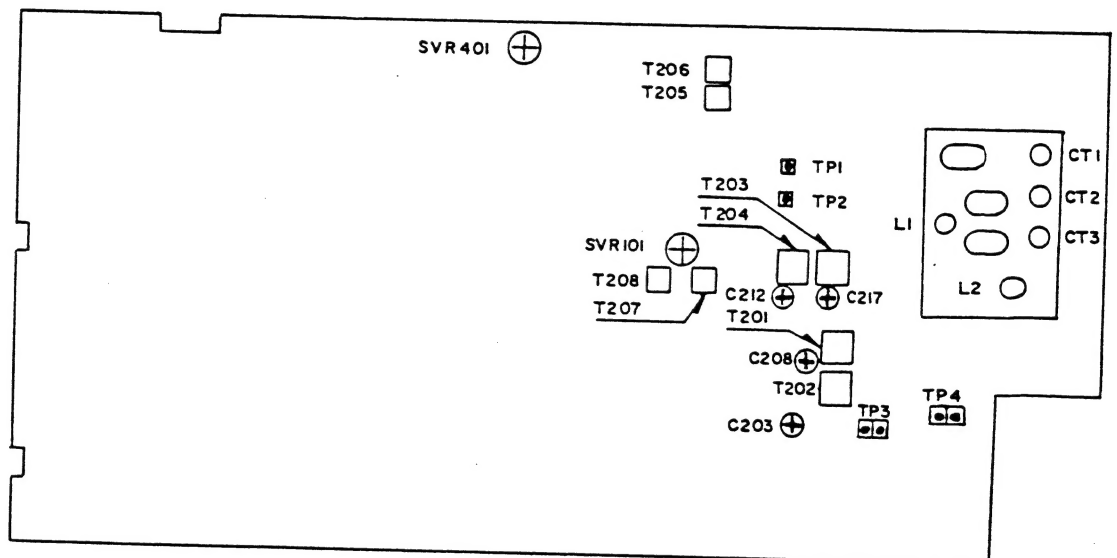
L1: FM IFT
 L2: FM OSC COIL
 CT1: FM 90MHz SENSITIVITY (NOT ADJUST)
 CT2: FM 98MHz SENSITIVITY (NOT ADJUST)
 CT3: FM 106MHz SENSITIVITY (NOT ADJUST)
 T205: DETECTOR COIL (TUNING ADJUST)
 T206: DETECTOR COIL (DISTORTION ADJUST)
 T203: MW OSC COIL
 T204: LW OSC COIL

C212: LW OSC TRIMMER
 C217: MW OSC TRIMMER
 T201: MW ANT COIL
 T202: LW ANT COIL
 C208: MW ANT TRIMMER
 C203: LW ANT TRIMMER
 T207, 208: MW(LW) IFT
 SVR401: SEPARATION CONTROL
 SVR101: MUTING LEVEL CONTROL

| ZEILE | POSITION | SYM BEZEICHNUNG | ET-NUMMER | ANZ |
|-------|------------|---------------------------------|-----------|-----|
| 1 | | | | |
| 2 | | NF-VERB.KABEL 2X CINCH JE SEITE | 997 609 3 | 001 |
| 3 | | FM-WURFANTENNE 75 OHM-ANSCHLUSS | 965 604 2 | 001 |
| 4 | | FM-DIPOLANTENNE 300 OHM | 741 923 7 | 001 |
| 5 | | | | |
| 6 | | GEHAEUSE UND BEDIENTEILE : | | |
| 7 | | | | |
| 8 | 1 | KLARSICHTSCHEIBE | 741 942 7 | 001 |
| 9 | 2 | ABDECKSCHEIBE,DISPLAY | 741 944 3 | 001 |
| 10 | 3 | FILTERSCHEIBE,DISPLAY | 741 943 5 | 001 |
| 11 | 4 | KNOPF,MONO-STEREO | 741 930 2 | 001 |
| 12 | 5-1 | KNOPF,FM | 741 939 3 | 001 |
| 13 | 5-2 | KNOPF,LW | 741 940 1 | 001 |
| 14 | 5-3 | KNOPF,MW | 741 941 9 | 001 |
| 15 | 6 | KNOPF,TUNING | 741 929 4 | 001 |
| 16 | 7 | KNOPF,POWER | 741 896 5 | 001 |
| 17 | 8 | FEDER | 741 893 2 | 001 |
| 18 | 9 | FRONTBLLENDE | 741 924 5 | 001 |
| 19 | 12-0 | KNOPF,MEMORY | 741 927 8 | 001 |
| 20 | 12-1 | KNOPF,1 | 741 931 0 | 001 |
| 21 | 12-2 | KNOPF,2 | 741 932 8 | 001 |
| 22 | 12-3 | KNOPF,3 | 741 933 6 | 001 |
| 23 | 12-4 | KNOPF,4 | 741 934 4 | 001 |
| 24 | 12-5 | KNOPF,SEARCH | 741 928 6 | 001 |
| 25 | 12-6 | KNOPF,5 | 741 935 1 | 001 |
| 26 | 12-7 | KNOPF,6 | 741 936 9 | 001 |
| 27 | 12-8 | KNOPF,7 | 741 937 7 | 001 |
| 28 | 12-9 | KNOPF,8 | 741 938 5 | 001 |
| 29 | 20 | CINCHBUCHSE | 734 921 0 | 001 |
| 30 | 21 | RUECKWAND | 741 926 0 | 001 |
| 31 | 23 | HALTER FUER FERRITANTENNE | 734 927 7 | 001 |
| 32 | 25 | FERRITANTENNE | 734 928 5 | 001 |
| 33 | 29 | ANSCHLUSSBUCHSE 13-PIN | 741 911 2 | 001 |
| 34 | 30 | LAUTSPRECHERBUCHSENLEISTE | 734 920 2 | 001 |
| 35 | 33 | GEHAEUSE-OBERTEIL | 741 925 2 | 001 |
| 36 | 35 | NETZTRAFO | 741 921 1 | 001 |
| 37 | 37 | FUSS | 741 889 0 | 001 |
| 38 | 38 | STOPPEN FUER FUSS | 741 888 2 | 001 |
| 39 | 46 | FEDER | 741 894 0 | 001 |
| 40 | | | | |
| 41 | | ELEKTRISCHE TEILE : | | |
| 42 | | | | |
| 43 | | NETZTRAFO | 741 921 1 | 001 |
| 44 | | CINCHBUCHSE | 734 921 0 | 001 |
| 45 | MONO-STERE | TASTSCHALTER | 741 922 9 | 001 |
| 46 | NETZ | SCHALTER | 741 882 5 | 001 |
| 47 | | TAKT-SCHALTER | 740 001 3 | 001 |
| 48 | TUNER I | UKW-TEIL | 734 887 3 | 001 |
| 49 | | FERRITANTENNE | 734 928 5 | 001 |
| 50 | CF101-103 | FM-KERAMIKFILTER | 986 820 9 | 001 |
| 51 | CF201 | AM-KERAMIK-FILTER AHCM2-450 BL | 734 979 8 | 001 |
| 52 | CF202 | AM-KERAMIK-FILTER BFU 450C-4N | 734 980 6 | 001 |
| 53 | D201 | CAP.-DIODE KV 1236 Z1 | 733 388 3 | 001 |
| 54 | D205,735 | LED SLB 25 DU | 741 915 3 | 001 |
| 55 | D402 | LED SLB 25 MG GRUEN | 741 914 6 | 001 |
| 56 | D501-504 | DIODE 1 N 4002 | 921 523 7 | 001 |
| 57 | D505 | Z-DIODE RD 5,6 EB1 | 965 944 2 | 001 |
| 58 | D506 | ZENERDIODE RD 24 FB 3 | 954 413 1 | 001 |
| 59 | D512,513 | DIODE 1 N 4148 | 175 540 4 | 001 |
| 60 | D701 | DIODE 1 N 4148 | 175 540 4 | 001 |
| 61 | FL701 | DISPLAY FIP7C80 | 734 281 9 | 001 |
| 62 | IC201 | IC LA 1267 | 734 938 4 | 001 |
| 63 | IC401 | IC LA 3410 | 741 872 6 | 001 |
| 64 | IC501 | IC NJM 78 M 12 | 985 474 6 | 001 |
| 65 | IC701 | IC LM 7000 | 734 970 7 | 001 |
| 66 | IC702 | IC LC 7030 | 734 971 5 | 001 |
| 67 | L | SPULE 470 UH | 741 986 4 | 001 |
| 68 | L | SPULE 10 UH | 741 987 2 | 001 |
| 69 | LF401,451 | LOW-PASS-FILTER | 734 990 5 | 001 |
| 70 | Q101 | TRANSISTOR 2 SC 838 | 175 507 3 | 001 |
| 71 | Q102 | TRANSISTOR 2 SA 733 P | 275 032 1 | 001 |
| 72 | Q201,202 | TRANSISTOR 2 SC 2240 BL | 950 910 0 | 001 |
| 73 | Q203,204 | TRANSISTOR 2 SC 945 | 175 739 2 | 001 |
| 74 | Q401,451 | TRANSISTOR 2 SC 945 | 175 739 2 | 001 |
| 75 | Q501-503 | TRANSISTOR 2 SA 733 P | 275 032 1 | 001 |
| 76 | Q701,702 | TRANSISTOR 2 SK 583 | 734 975 6 | 001 |
| 77 | Q703 | TRANSISTOR 2 SC 945 | 175 739 2 | 001 |
| 78 | Q704-717 | TRANSISTOR 2 SA 733 P | 275 032 1 | 001 |
| 79 | Q720 | TRANSISTOR 2 SA 733 P | 275 032 1 | 001 |
| 80 | Q721 | TRANSISTOR 2 SC 945 | 175 739 2 | 001 |
| 81 | T201 | MW-ANTENNEN-FILTER | 734 984 8 | 001 |

| MW. LW. RF ALIGNMENT | | | | | | |
|----------------------|---|---------------|---------------------|------------------|-----------------------|--------------|
| STEP | SIGNAL SOURCE | SET SIGNAL TO | ALIGNMENT INDICATOR | SET INDICATOR TO | ADJUST | REMARK |
| | CONNECT TO | | CONNECT TO | | | |
| 16 | AM SIGNAL GEN | 603 kHz | V.T.V.M | 603 kHz | T201 MW (ANT COIL) | MAXIMUM GAIN |
| | AM ANT TERMINAL | | AM DET OUTPUT | | | |
| 17 | AM SIGNAL GEN | 1404kHz | V.T.V.M | 1404 kHz | C208 MW (ANT TRIMMER) | MAXIMUM GAIN |
| | AM ANT TERMINAL | | AM DET. OUTPUT | | | |
| 18 | REPEAT STEPS 16 AND 17 FOR MINIMUM CHANGE | | | | | |
| 19 | AM SIGNAL GEN | 175 kHz | V.T.V.M | 175 kHz | T202 LW (ANT.COIL) | MAXIMUM GAIN |
| | AM ANT TERMINAL | | AM DET. OUTPUT | | | |
| 20 | AM SIGNAL GEN | 320 kHz | V.T.V.M | 320 kHz | C203 LW (ANT TRIMMER) | MAXIMUM GAIN |
| | AM ANT TERMINAL | | AM DET. OUTPUT | | | |
| 21 | REPEAT STEPS 19 AND 20 FOR MINIMUM CHANGE | | | | | |

4. ALIGNMENT POINT LOCATION



L1: FM IFT
 L2: FM OSC COIL
 CT1: FM 90MHz SENSITIVITY (NOT ADJUST)
 CT2: FM 98MHz SENSITIVITY (NOT ADJUST)
 CT3: FM 106MHz SENSITIVITY (NOT ADJUST)
 T205: DETECTOR COIL (TUNING ADJUST)
 T206: DETECTOR COIL (DISTORTION ADJUST)
 T203: MW OSC COIL
 T204: LW OSC COIL

C212: LW OSC TRIMMER
 C217: MW OSC TRIMMER
 T201: MW ANT COIL
 T202: LW ANT COIL
 C208: MW ANT TRIMMER
 C203: LW ANT TRIMMER
 T207, 208: MW(LW) IFT
 SVR401: SEPARATION CONTROL
 SVR101: MUTING LEVEL CONTROL

